

REMARKS

Reconsideration and allowance are respectfully requested in view of the following remarks.

By this amendment, claims 1 and 50 are amended. Claims 1-9 and 50-64 are pending in this application. Claims 1 and 57 are pending in the application.

Claim Objection

The Examiner objects to claim 50 under 37 CFR § 1.75(a). Claim 50 has been amended according to the Examiner's recommended language. Accordingly, withdrawal of the objection is respectfully requested.

Rejections Under 35 U.S.C. § 112

Claims 1-9 and 50-56 are rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite. This rejection is respectfully traversed.

The Examiner asserts that it is unclear if the physical objects recited in line 8 of claim 1 are the same or different from the physical objects recited in line 4. Applicants respectfully disagree with this interpretation, in that the physical objects recited in line 8 of claim 1 clearly reference (and thereby refer back to) the physical objects recited in line 4. Nevertheless, to make this clearer in view of the Examiner's rejection, lines 8 and 13 of claim 1 have each been amended to recite "the physical objects included in the received image" to obviate any confusion that the physical objects recited in lines 8 and 13 refer to any other physical objects other than those included in the received image. Accordingly, reconsideration and withdrawal of the indefiniteness rejection is respectfully requested.

Rejections Under 35 U.S.C. § 102

Claims 1-4, 6, 50-51, 54-58, 61, 63 and 64 are rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Brill et al. (U.S. Patent 6,542,621). This rejection is respectfully traversed.

Claim 1 recites a method for identifying objects in an image. The method of claim 1 comprises receiving an image with a first resolution, where the image represents a scene that includes physical objects. The method of claim 1 comprises transforming the image at the first resolution to an image at a second resolution, where the first resolution is higher than the second resolution.

In addition, the method of claim 1 comprises processing the image at the second (lower) resolution to identify an object among the physical objects in the image at the second (lower) resolution. The method of claim 1 also comprises selecting a detection algorithm from among plural detection algorithms based on a condition associated with the object identified at the second (lower) resolution.

Furthermore, the method of claim 1 comprises processing the image at the first resolution using the object identified at the second (lower) resolution to identify another object from among the physical objects in the image at the first (higher) resolution according to the selected detection algorithm.

Accordingly, claim 1 recites that a condition associated with an object identified at a lower resolution is used to select a detection algorithm, and the selected detection algorithm is used to identify another object at a higher resolution.

In contrast to claim 1, which is directed to identifying objects in an image, the portions of Brill relied upon by the Examiner in rejecting claim 1 is directed to

tracking objects in a video i.e. a sequence of images. According to Brill, a two dimensional change detection technique can be used to find interesting objects in a scene. See, for example, col. 3, lines 36-54 of Brill. The change detection technique of Brill involves taking the difference between a reference image (Fig. 2A) and a subsequently captured image (Fig. 2B) to produce a difference image (Fig. 2C). To reduce the number of pixels, the difference image (Fig. 2C) is sub-sampled to form a low-resolution difference image (Fig. 2D). The low resolution difference image (Fig. 2D) is transformed to form, in sequence, Figs. 2E, 2F, and 2G. Each pixel in Fig. 2G represents a change region, corresponding to an object which has been introduced in Fig. 2B. Then, a bounding box for the change region is determined. See, for example, col. 3, lines 55-col. 4, lines 57.

In Brill, after determination of the bounding box for the change region, an identification of the object in the bounding box can take place. A vertical height of the bounding box is determined. If the object is sufficiently tall to be a person, it can be assumed that it is a person. Otherwise, an object analysis procedure is initiated to attempt to classify the object.

Brill also discloses a method of tracking objects over many frames of video. In the example of Fig. 3A, two persons are detected. In subsequent frames, the persons are tracked, even if they overlap, by using p-templates. According to Brill, p-templates are images which represent the prior probabilities of the person locations based on the previous video image. See, for example, col. 5, line 55-col. 6, line 65.

The Examiner asserts that the determination as to whether the object in Brill is sufficiently tall to be a person corresponds to a condition on which a selection of a detection algorithm is based. This assertion is unsupportable because the Brill

determination does not select a detection algorithm from among plural detection algorithms, as recited in claim 1. Rather, if the object is determined to be sufficiently tall, the object is considered to be a person, and no further processing is necessary. If the object is not considered to be a person, there are further attempts to classify the image, but there is no disclosure of selecting among detection algorithms. On the contrary, the object is already detected in a single detection algorithm to arrive at Figs. 2A-2G and the bounding box for the detected object. See, for example, col. 4, lines 64 and 65 of Brill.

Moreover, the height of one bounding box is not used to select an algorithm which is then used to detect another object in a higher resolution version of the image. The Examiner asserts that the use of a p-template in Brill corresponds to processing the image at the first (higher) resolution using the object identified at the second (lower) resolution to identify another object, from among the physical objects, in the image at the first (higher) resolution according to the selected detection algorithm, as recited in claim 1. This assertion is unsupportable.

In Brill, the p-template is used in future frames at the sub-sampled resolution and is not used with the original, higher resolution image. Instead, the higher resolution image is always sub-sampled and processed to detect an object. Accordingly, Brill does not process an image at the first (higher) resolution to identify another object, as recited in claim 1, because (1) the p-template represents a completely different image and (2) all object identification occurs at the same resolution.

Furthermore, the detection of one object does not influence the detection of another object in any manner. Thus, Brill does not disclose identifying another object

according to a selected detection algorithm based upon a condition associated with a first detected object, as recited in claim 1.

For at least the foregoing reasons, Brill does not disclose all of the features of independent claim 1. Accordingly, independent claim 1 is allowable. Independent claim 57 is also allowable, for at least similar reasons to those presented above with respect to allowable claim 1. Dependent claims 2-9, 50-56, and 58-64 are allowable by virtue of their dependency from allowable claims 1 and 57, and on their own merits.

Rejections Under 35 U.S.C. §103

Claim 7 stands rejected under 35 U.S.C. § 103 as allegedly being unpatentable over Brill in view of Hsu (U.S. Patent 6,618,490).

Hsu does not remedy the deficiencies of Brill for failing to disclose all of the features of claim 1. Accordingly, claim 7 is also allowable.

Conclusion


In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is in condition for allowance. Accordingly, Applicants request a favorable examination and consideration of the instant application.

If, after reviewing this Amendment, the Examiner believes there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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